

APPENDIX 2.10-1

Paleontological Resources Information



3 February 2015

Ms. Liz Jackson
Jackson Pendo Development Company
2245 San Diego Avenue, Suite 223
San Diego, California 92110

Subject: Paleontological Resource and Monitoring Assessment, Proctor Valley Project,
Unincorporated San Diego County, California

Dear Ms. Jackson:

Location: A paleontological resource assessment has been completed for the Proctor Valley Project area and vicinity, located below the southeastern flank of San Miguel Mountain and the northwestern flank of the Jamul Mountains southwest of Jamul and northeast of Upper Otay Reservoir in unincorporated San Diego County, California (Attachments 1 and 2). The project area comprises approximately 3,128 acres or about 4.89 square miles. On the U. S. Geological Survey 7.5-minute Jamul Mountains, California topographic quadrangle map (1955 edition, photorevised 1971 and 1975) (Attachment 2), the project area comprises all of Sections 16 and 17, and portions of Sections 8, 9, 18, 19, 20, and 30 in Township 17 South, Range 1 East, and portions of Sections 24 and 25, Township 17 South, Range 1 West, San Bernardino Base and Meridian. The subject property comprises most of the flat-lying valley area of Proctor Valley and the ascending slopes to the west and east above the valley floor.

Geology: The geology of the Jamul Mountains, California quadrangle is shown on the geologic maps of Tan (2002, Geologic map of the Jamul Mountains 7.5' quadrangle, San Diego County, California: A digital database, scale 1:24,000, published by the California Geological Survey) and Todd (2004, Preliminary geologic map of the El Cajon 30' x 60' quadrangle, southern California, version 1.0: U. S. Geological Survey Open-File Report 2004-1361: 1-30, 1 map sheet [scale 1:100,000]). Geologically, the Proctor Valley Project area is mainly underlain by two major rock types that consist of metavolcanic rocks of the Santiago Peak Volcanics in the upslope parts of the area, and sedimentary rocks of the Otay Formation in the lower lying valley and southwestern parts of the area. Minor exposures of upper Pleistocene (>10,000 year old) older alluvium (Qoa) and colluvium are present on the east side of the southern part of the valley, and unconsolidated Holocene (<10,000 year old) alluvial deposits are present along the valley bottom and in the limited floodplain areas (Attachment 3, after Tan, 2002).

The Lower Cretaceous (~ 128 to ~ 118 million year old) Santiago Peak Volcanics (KJmv on Attachment 3, after Tan, 2002; and Ksp on Todd, 2004, sheet 1) consist of mildly metamorphosed volcanic and volcanoclastic rocks, but are predominantly andesite and dacite in composition. Metasedimentary parts of the Santiago Peak Volcanics, which elsewhere are known to contain Jurassic fossils (*e.g.*, Fife, Minch, and Crampton, 1967, Geological Society of America Bulletin, v. 78, pp. 299-304), have not been identified locally. The Jurassic metasediments are regarded as a separate formation by Abbott (1999, The Rise and Fall of San Diego – 150 million years of history recorded in sedimentary rocks: Sunbelt Publications) and Walawender (2000, The Peninsular Ranges – A geological guide to San Diego’s back country: Kendall/Hunt Publishing Company), *q.v.*

Paleontology: The fossiliferous Otay Formation is divided into three informal members by paleontologists at the San Diego Natural History Museum, being an upper siltstone-sandstone-mudstone member, a middle gritstone member, and a basal angular-clast fanglomerate member (Deméré and Walsh, 1993, Paleontological Resources – County of San Diego, p. 12). On local geologic maps, the formation is divided into an upper member (To on geologic maps of Tan [2002, see Attachment 3] and Todd [2004, sheet 1]) and a lower pebbly conglomerate, gritstone, and sandstone member (Tof on geologic map of Tan [2002, see Attachment 3] and Tf on geologic map of Todd [2004, sheet 1]). Numerous fossil localities have been discovered in the upper siltstone-sandstone-mudstone member and the middle gritstone member, but have yet to be recorded from the basal fanglomerate member (Deméré and Walsh, 1993). Deméré and Walsh (1993) assign a “high paleontological resource sensitivity” to the upper member of the Otay Formation, and a “moderate paleontological resource sensitivity” to the middle and lower members of the Otay Formation. Quaternary alluvial deposits are assigned a low paleontological sensitivity by Deméré and Walsh (1993) and the County of San Diego (Stephenson *et al.*, 2009).

Records Search: Based on a paleontological collections and records search conducted by the Department of Paleontology at the San Diego Natural History Museum in August of 2014 (Attachment 4), there are no previously recorded fossil localities within the boundaries of the Proctor Valley Project area. However, there are at least 18 recorded fossil localities known from the Otay Formation within a one-mile radius of the southwesternmost part of the proposed project (Attachment 4). Eleven of these localities represent the upper siltstone-sandstone-mudstone member of the Otay Formation, six localities represent the middle gritstone member, and data are not available for one locality. These localities have yielded important and diverse assemblages of terrestrial vertebrate fossils, including lizard, snake, tortoise, a variety of small rodent-sized animals, rabbit, dog, fox, small browsing animals called oreodonts (*i.e.*, *Sespiia* spp. and others), and rhinoceros. The Otay Formation is now considered to be the richest source of late Oligocene (28 to 30 million year old) terrestrial vertebrates in California (Deméré and Walsh, 1993, p. 12). A list of species found at each of the documented localities follows each locality description in Attachment 4.

Mitigation Program: According to the “County of San Diego Guidelines for Determining Significance [of] Paleontological Resources” (Stephenson *et al.*, 2009, p. 15), “An affirmative response to or confirmation of the following Guidelines will generally be considered a significant impact related to paleontological resources as a result of project implementation, in the absence of scientific evidence to the contrary”:

The project proposes activities directly or indirectly damaging to a unique paleontological resource or site. A significant impact to paleontological resources may occur as a result of the project, if project-related grading or excavation will disturb the substratum or parent material below the major soil horizons in any paleontologically sensitive area of the County, as shown on the San Diego County Paleontological Resources Potential and Sensitivity Map. (Stephenson *et al.*, 2009, figure 2)

Because of the “high paleontological resource sensitivity” of the upper siltstone-sandstone-mudstone member of the Otay Formation and the “moderate paleontological resource sensitivity” of the middle gritstone and lower fanglomerate members of the Otay Formation, in addition to the documented presence of numerous fossiliferous localities in these units immediately west of the project area, it is recommended that paleontological monitoring be required during all mass grading and excavation (utility trenching, etc.) activities in surface and subsurface exposures of the Otay Formation (as delineated on Attachment 3) in order to mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources (*i.e.*, terrestrial vertebrate fossils). A Mitigation Monitoring and Reporting Program (MMRP) consistent with the provisions of the California Environmental Quality Act (CEQA) and of the County of San Diego Guidelines for Determining Significance [of] Paleontological Resources (2009) should be implemented for any mass grading- and/or excavation-related activities, including utility trenching, during construction development of the Proctor Valley Project area (see page 4, herein). Paleontological monitoring is not considered necessary within areas mapped as the Santiago Peak Volcanics, nor in the Quaternary alluvial deposits, the latter of which are considered too young to yield any paleontological resources.

If there are any questions concerning this evaluation, please feel free to contact us at our Poway address. Thank you for the opportunity to have provided paleontological services for this project.

Sincerely,



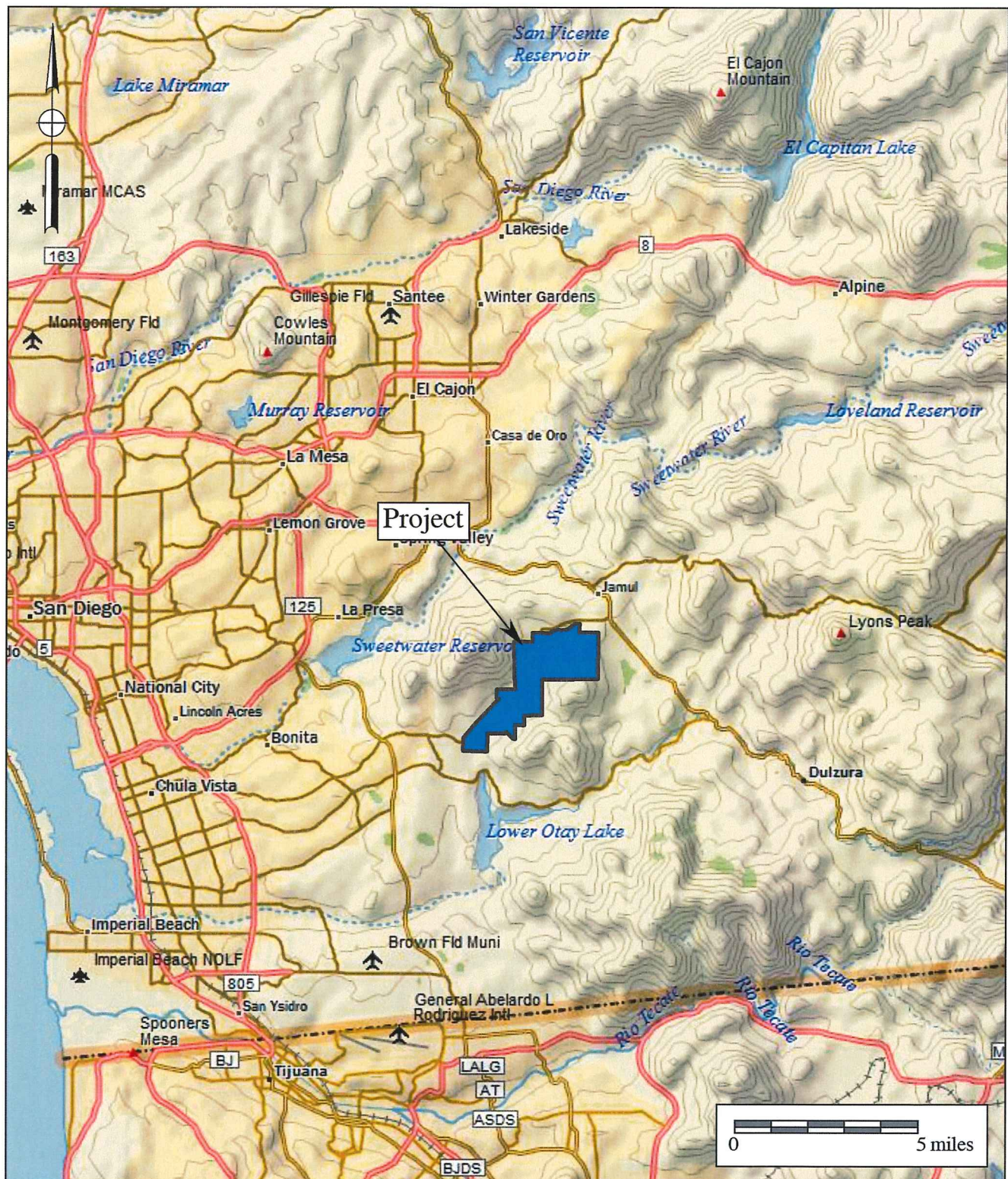
George L. Kennedy, Ph.D.
Senior Paleontologist

Attachments: Index maps, geologic map, SDNHM records search results

**Paleontological Mitigation Plan,
Proctor Valley Project**

A Qualified Paleontologist or Paleontological Resources Monitor (under the supervision of the Qualified Paleontologist) shall be on-site during all excavation operations within geologic formations that may contain paleontological resources (*i.e.*, the Otay Formation). The Qualified Project Paleontologist is a person with a Ph.D. or Master's Degree in Paleontology or related field, and who has knowledge of San Diego County paleontology, and documented experience in professional paleontological procedures and techniques. A Paleontological Monitor is defined as an individual with at least one year of experience in field identification and collection of fossil materials. The Paleontological Monitor shall work under the direct supervision of the Qualified Paleontologist. The applicant shall authorize the Qualified Paleontologist and/or Paleontological Monitor to direct, divert, or halt any grading activity, and to perform all other acts required by the provisions listed below.

- A. Monitor all grading and excavation activities of undisturbed formations of sedimentary rock (*i.e.*, the Otay Formation);
- B. If paleontological resources are unearthed, the Qualified Paleontologist or Paleontological Monitor shall:
 - 1. Direct, divert, or halt any grading or excavation activity until such time that the sensitivity of the resource can be determined and the appropriate recovery implemented;
 - 2. Salvage unearthed fossil remains, including simple excavation of exposed specimens or, if necessary, plaster-jacketing of large and/or fragile specimens or more elaborate quarry excavations of richly fossiliferous deposits;
 - 3. Record stratigraphic and geologic data to provide a context for the recovered fossil remains, typically including a detailed description of all paleontological localities within the project site, as well as the lithology of fossil-bearing strata within the measured stratigraphic section, if feasible, and photographic documentation of the geologic setting;
 - 4. Prepare collected fossil remains for curation, to include cleaning the fossils by removing the enclosing rock material (matrix), stabilizing fragile specimens using glues and other hardeners, if necessary, and repairing broken specimens;
 - 5. Curate, catalogue, and identify all fossil remains to the lowest taxon possible, inventory specimens, assign catalog numbers, and enter the appropriate specimen and locality data into a collection database; and
 - 6. Transfer the cataloged fossil remains to an accredited institution (museum or university) in California that maintains paleontological collections for archival storage and/or display. The transfer shall include copies of relevant field notes, maps, stratigraphic sections, and photographs.
- C. The Qualified Paleontologist shall prepare a final Paleontological Resources Mitigation Report summarizing the field and laboratory methods used, the stratigraphic units inspected, the types of fossils recovered, and the significance of the curated collection.
- D. Submit TWO hard copies of the final Paleontological Resources Mitigation Report to the Director of Planning and Development Services (PDS) for final approval of the mitigation, and submit an electronic copy of the report according to the County PDS's Electronic Submittal Format Guidelines.



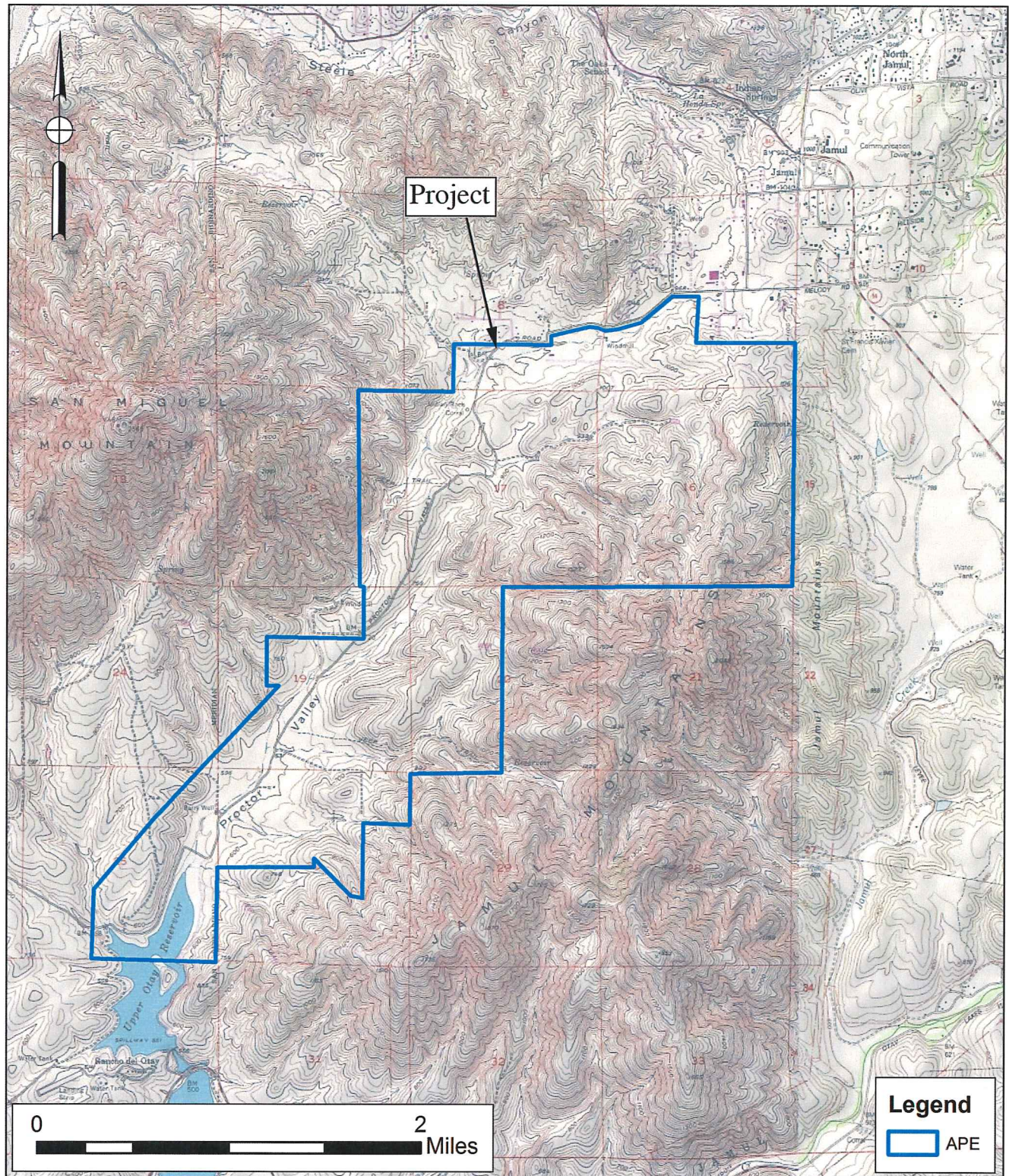
Attachment 1

General Location Map

The Proctor Valley Project

DeLorme (1:250,000 series)





1:48,000

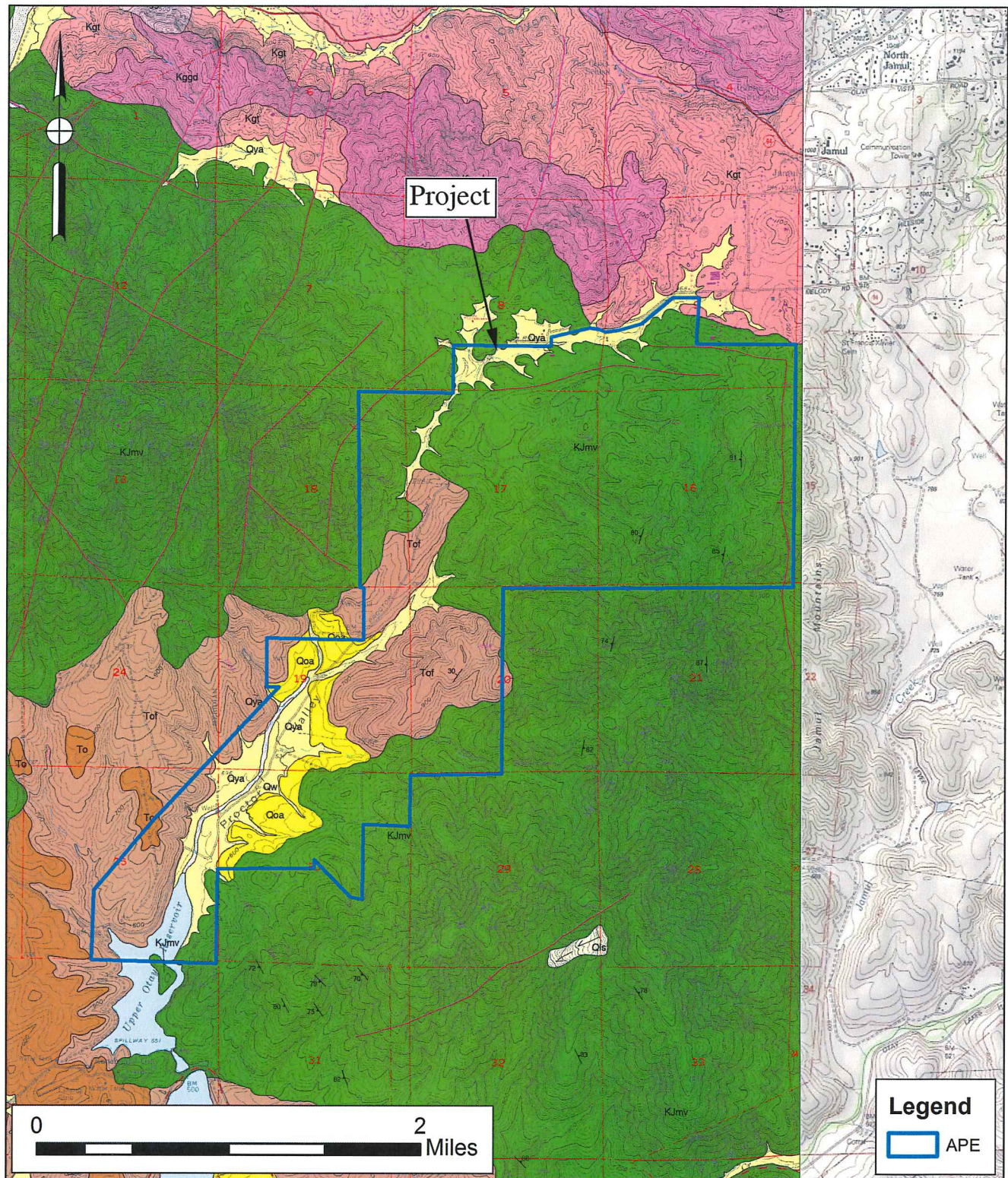


Attachment 2

Project Location Map

The Proctor Valley Project

USGS Jamul Mountains Quadrangle (7.5-minute series)



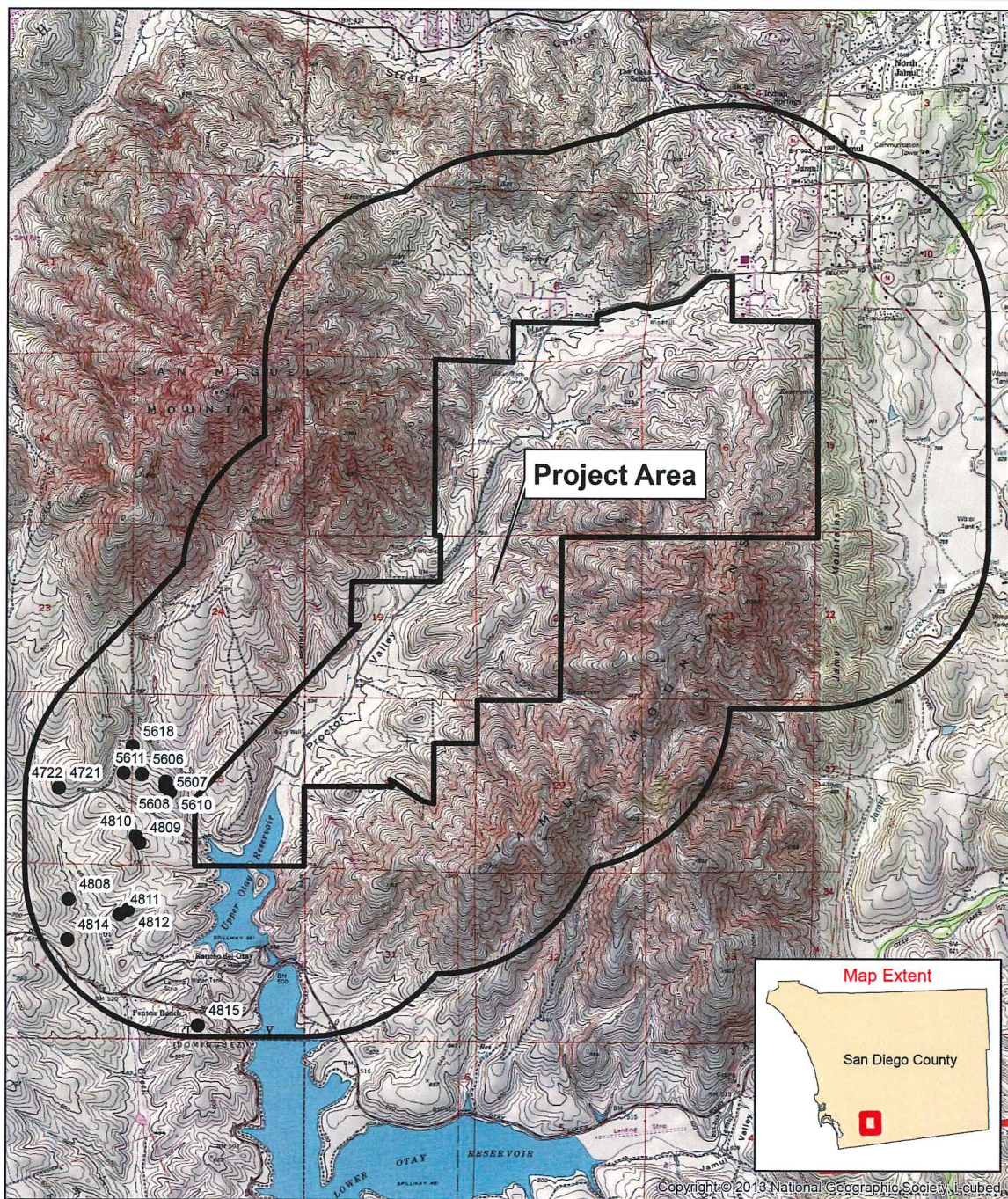
1:48,000



Attachment 3 **Geologic Map** **The Proctor Valley Project** Geology after Tan (2002)

ATTACHMENT 4

**SAN DIEGO NATURAL HISTORY MUSEUM
COLLECTIONS AND RECORDS SEARCH
RESULTS**



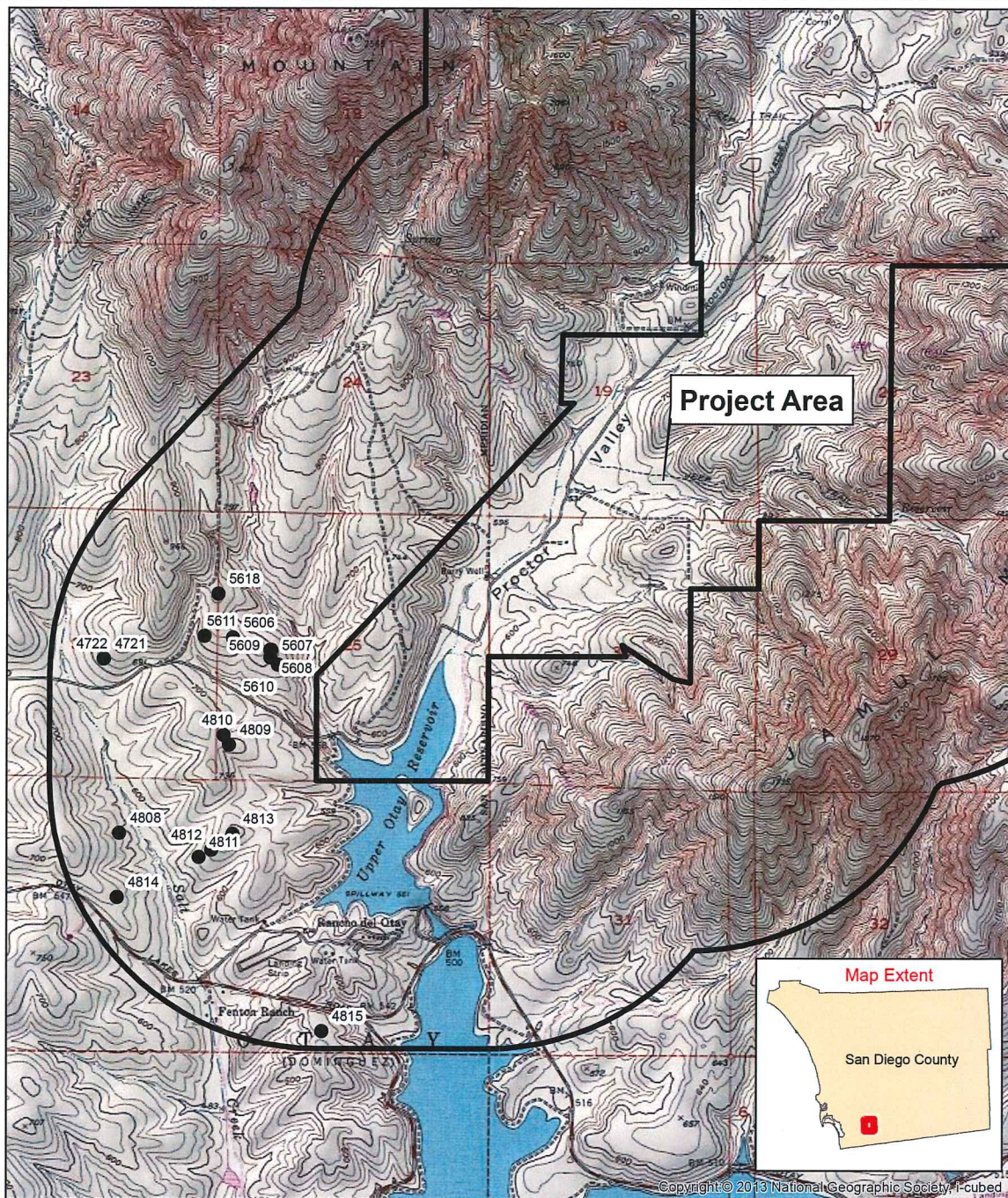
SDNHM fossil localities within one mile of the Proctor Valley Project (BFS # 14-119) (Base maps USGS Topographic Maps of the Jamul Mountains, Dulzura, Otay Mesa, and Otay Mountain 7.5' Quadrangles, California).

0 1 Miles



Records Search Map

The Proctor Valley Project



SDNHM fossil localities within one mile of the southwestern boundary of the Proctor Valley Project (BFS # 14-119) (Base maps USGS Topographic Maps of the Jamul Mountains, Dulzura, Otay Mesa, and Otay Mountain 7.5' Quadrangles, California).

0 1 Miles



Enlarged Records Search Map

The Proctor Valley Project

DATE 08/27/14
TIME 14:00:07

LOCALITY # LOCALITY NAME
4721 Rolling Hills Ranch Village 7

FIELD NUMBER
PJS27Nov00-2

LOCATION

COUNTRY U.S.A.
STATE CA
COUNTY San Diego
CITY Chula Vista

LATITUDE 32°39'45"W VARIANCE
LONGITUDE 116°57' 6"W
UTM 11 504530 3613690 VARIANCE

SECT TNSP DIREC RANGE DIR
26 17 S 1 W
MAP NAME Jamul Mountains, CA
MAP SCALE 1:24000 DATUM NAD1927
MAP SOURCE USGS 1955(1975)

LOCATION IN SECTION N 1/2, SE 1/4

ELEVATION 718 FT

LOCALITY #- 4721

SAN DIEGO NATURAL HISTORY MUSEUM
DEPARTMENT OF PALEONTOLOGY
LOCALITY CARD

STRATIGRAPHIC POSITION
GROUP
FORMATION Otay Formation
MEMBER
INFORMAL NAME sandstone-mudstone member
ERA Cenozoic
SYSTEM Paleogene
SER/EPOCH late Oligocene
AGE/STAGE
NALMA early Arikareean
ZONE NAME

LITHOLOGY	DEPOSITIONAL ENVIRONMENT	FIELD NOTES	PHOTOS	ACCESS NO.
sdst	nonmarine	P.J. Sena, S.L. Walsh, H.M. Wagner COLLECTOR		
CITATION		P.J. Sena, S.L. Walsh, H.M. Wagner, R.A. Cerutti 27 Nov 2000 COMPILED BY		
DONATED BY		P.J. Sena 12 Feb 2001	ENTERED BY	
Pacific Bay Homes	27 Nov 2000		H.M. Wagner	19 Feb 2003

LOCALITY DESCRIPTION

Rolling Hills Ranch, Neighborhood 7 is a large planned community in eastern Chula Vista east of Highway 805 at the eastern end of H Street on the west side of Proctor Valley, east of Proctor Valley Road and Hunte Parkway. This locality was collected on Salt Creek.

The fossils were recovered from an orange, coarse-grained sandstone with white micro-sized bone fragments. The bone-bearing bed was less than one inch thick and was well sorted.

The fossil bed is 1/8 thick to one foot thick. This orange, coarse-grained bed is laterally extensive with horizontal bedding. The eastern margin laps up against an outcrop of Santiago Peak Volcanics. This fossil horizon is overlain by a three foot thick gray, fine-grained, thinly laminated sandstone. This bed is overlain by a two foot thick bentonite bed. The fossil bed is overlying a three foot thick tan, medium-grained massive sandstone that in turn overlies an 8 foot thick, tan, medium-grained sandstone. This overlies a one foot thick, tan, massive sandstone bed which has considerable lateral distribution.

The locality was hand-quarried utilizing a demolition hammer and approximately 1,000 pounds of material was collected for screen-washing.

The fossils recovered consisted of small rodent and reptile bone fragments and teeth.

The locality is preserved at and elevation of 718 feet in areas in the development where the sediments were not removed as the bed was laterally extensive.

LOCALITY: 4721

89063	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89064	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89065	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89066	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89067	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89068	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89069	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89070	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89071	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89072	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89073	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89074	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89075	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89076	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89077	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89078	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
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89102	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89103	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89104	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89105	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89106	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89107	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89108	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89109	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89110	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89111	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89112	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89113	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89114	Heliscomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89219	Geomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89220	Geomyidae	Otay Formation, sandstone-mudstone member	early Arikareean
89221	Cricetidae	Otay Formation, sandstone-mudstone member	early Arikareean
89222	Rodentia	Otay Formation, sandstone-mudstone member	early Arikareean
89223	Rodentia	Otay Formation, sandstone-mudstone member	early Arikareean
89224	Rodentia	Otay Formation, sandstone-mudstone member	early Arikareean
89225	Rodentia	Otay Formation, sandstone-mudstone member	early Arikareean
89226	Rodentia	Otay Formation, sandstone-mudstone member	early Arikareean
89227	Rodentia	Otay Formation, sandstone-mudstone member	early Arikareean
89228	Rodentia	Otay Formation, sandstone-mudstone member	early Arikareean
89229	Rodentia	Otay Formation, sandstone-mudstone member	early Arikareean
89230	Rodentia	Otay Formation, sandstone-mudstone member	early Arikareean
89231	Rodentia	Otay Formation, sandstone-mudstone member	early Arikareean
89232	Rodentia	Otay Formation, sandstone-mudstone member	early Arikareean
89233	Rodentia	Otay Formation, sandstone-mudstone member	early Arikareean

LOCALITY # 4722		LOCALITY NAME Rolling Hills Ranch Village 7, #2		FIELD NUMBER DRS27Nov00-2	
LOCATION		LATITUDE 32°39'45"W		VARIANCE	
COUNTRY USA		LONGITUDE 116°57' 6"W			
STATE CA		UTM 11 504530 3613690		VARIANCE	
COUNTY San Diego		MAP NAME Jamul Mountains, CA			
CITY Chula Vista		MAP SCALE 1:24000		DATUM NAD1927	
SECT 26		TWNSP 17		RANGE 1	
DIREC S		DIR W			
LOCATION IN SECTION N1/2,SE1/4					
ELEVATION 713 FT					
LITHOLOGY sdst		DEPOSITIONAL ENVIRONMENT nonmarine		FIELD NOTES D.R. Swanson, H.M. Wagner, S.L. Walsh	
CITATION				COLLECTOR D.R. Swanson 27 Nov 2000	
DONATED BY Pacific Bay Homes		27 Nov 2000		COMPILED BY P.J. Sena 12 Feb 2001	
				ENTERED BY H.M. Wagner 5 Mar 2003	
				PHOTOS ACCESS NO.	

LOCALITY DESCRIPTION

Rolling Hills Ranch Neighborhood 7 is a large planned community in eastern Chula Vista east of Highway 805 at the eastern end of H Street on the west side of Proctor Valley, east of Proctor Valley Road and Hunte Parkway. This locality was collected on Salt Creek.

The fossils were recovered from an orange, coarse-grained sandstone with white micro-sized bone fragments. The bone-bearing bed was less than one inch thick and was well sorted.

The fossil bed is 1/8 inch thick to one foot thick. This orange, coarse-grained bed is not laterally very extensive and is 5 feet stratigraphically below 4721.

This localit was hand quarried and probably 200 pounds of the bed was processed as it was only a very small lense.

The locality was hand-quarried utilizing a hand tools.

The fossils consisted of small mammal bones. Only one specimen was identified from the screen-washed sample. A hand specimen of the bed was kept.

The locality has been quarried away.

LOCALITY: 4722

Records Search Results: [SDSNH loc. 4722](#)

Specimen #	Genus/Species	Family or Higher Taxon	Rock Unit	NALM Age
89295		Geomyidae	Otay Formation, sandstone-mudstone member	early Arikareean

DATE 08/27/14
TIME 14:00:15

LOCALITY #- 4808

SAN DIEGO NATURAL HISTORY MUSEUM
DEPARTMENT OF PALEONTOLOGY
LOCALITY CARD

LOCALITY # LOCALITY NAME
4808 EastLake Woods site 1

FIELD NUMBER
PJS2JAN02-1

LOCATION

COUNTRY U.S.A.
STATE CA
COUNTY San Diego
CITY Chula Vista

LATITUDE 32°39'11"N VARIANCE
LONGITUDE 116°57' 2"W

UTM 11 504624 3612640 VARIANCE

MAP NAME Jamul Mountains, CA
MAP SCALE 1:24000 DATUM NAD1927
MAP SOURCE USGS 1955(1975)

SECT TWNSP DIREC RANGE DIR
35 17 S 1 W

LOCATION IN SECTION NE 1/4

ELEVATION 625 FT

STRATIGRAPHIC POSITION

GROUP
FORMATION Otay Formation
MEMBER
INFORMAL NAME siltstone-mudstone member

ERA Cenozoic
SYSTEM Paleogene
SER/EPOCH late Oligocene
AGE/STAGE
NALMA late Arikareean
ZONE NAME

LITHOLOGY DEPOSITIONAL ENVIRONMENT

sdst nonmarine

CITATION

DONATED BY
EastLake Company 2 Jan 2002

FIELD NOTES

P.J. Sena, SLW notebook # 10

COLLECTOR

P.J. Sena, T.W. Ryan, H.M. Wagner 2 Jan 2002

COMPILED BY

P.J. Sena 4 Nov 2002

PHOTOS ACCESS NO.

ENTERED BY

H.M. Wagner 19 Dec 2002

LOCALITY DESCRIPTION

EastLake Woods is a large land development project located north of Otay Lakes Road, east of EastLake Business Park, west of Hunte Parkway, and bounded on the north by East H Street. This locality was collected just west of Hunte Parkway.

The fossils were recovered from a red-gray, pebbly, coarse-grained, cross-bedded sandstone.

The fossil-bearing bed was overlain by a gray, fine-grained, massive sandstone 2.5 feet thick overlain in turn by a gray 12 inch thick bentonite. The fossil-bearing sandstone is the basal portion of the siltstone-mudstone member. Underlying the fossil-bearing bed are the coarse-grained, poorly sorted, pebbly sandstones of the gritstone member.

The fossils were collected utilizing the pluck and run technique. A bulk sample of 1600 lbs was removed from a stockpile and was processed using screen-washing techniques.

The locality yielded specimens of Sespia, Mesoreodon, rodents, tortoise and lizard.

The locality has been graded away.

Field Numbers: PJS2JAN02-1, RAC2JAN-1, PJS13FEB02-1

LOCALITY: 4808

Records Search Results: SDSNH loc. 4808

Specimen #	Genus/Species	Family or Higher Taxon	Rock Unit
91228		Squamata	Otay Formation, siltstone-mudstone member
91229	Centetodon sp.	Geolabidae	Otay Formation, siltstone-mudstone member
91230		Insectivora	Otay Formation, siltstone-mudstone member
91231	cf. Pleurolicus sp.	Geomyidae	Otay Formation, siltstone-mudstone member
91232	Pleurolicus sp.	Geomyidae	Otay Formation, siltstone-mudstone member
91233	Pleurolicus sp.	Geomyidae	Otay Formation, siltstone-mudstone member
91234	cf. Pleurolicus sp.	Geomyidae	Otay Formation, siltstone-mudstone member
91235	cf. Pleurolicus sp.	Geomyidae	Otay Formation, siltstone-mudstone member
91236	cf. Pleurolicus sp.	Geomyidae	Otay Formation, siltstone-mudstone member
91237	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91238	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91239	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91240	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91241	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91242	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91243	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91244	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91245	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91246	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91247	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91248	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91249	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91250	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91251	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91252	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91253	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91254	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91255	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91256	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91257	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91258	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91259	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91260	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91261	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91262	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91263	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91264	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member

91265	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91266	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91267	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91268	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91269	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91270	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91271	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91272	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91273	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91274	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91275	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91276	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91277	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91278	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91279	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91280	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91281	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91282	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91283	Heliscomys sp.	Heliscomyidae	Otay Formation, siltstone-mudstone member
91284		Heliscomyidae	Otay Formation, siltstone-mudstone member
91285		Heliscomyidae	Otay Formation, siltstone-mudstone member
91286		Heliscomyidae	Otay Formation, siltstone-mudstone member
91287		Heliscomyidae	Otay Formation, siltstone-mudstone member
91288		Heliscomyidae	Otay Formation, siltstone-mudstone member
91289		Heliscomyidae	Otay Formation, siltstone-mudstone member
91290	cf. Mesoreodon sp.	Merycoidodontidae	
91291	Sespia californica	Merycoidodontidae	
91292	Sespia californica	Merycoidodontidae	
91293	Sespia californica	Merycoidodontidae	
91294	Sespia californica	Merycoidodontidae	
91295	Sespia californica	Merycoidodontidae	
91296	Sespia californica	Merycoidodontidae	
91297	Sespia californica	Merycoidodontidae	
91298	cf. Hypertragulus sp.	Hypertragulidae	
91299	cf. Hypertragulus sp.	Hypertragulidae	
91300	Hypertragulus sp.	Hypertragulidae	
91301	cf. Hypertragulus sp.	Hypertragulidae	
91312	Heliscomys sp.	Heliscomyidae	
91313	Heliscomys sp.	Heliscomyidae	
91314	Heliscomys sp.	Heliscomyidae	
91315	Heliscomys sp.	Heliscomyidae	

DATE 08/27/14
TIME 14:00:16

LOCALITY # LOCALITY NAME
4809 EastLake Woods site 2

SAN DIEGO NATURAL HISTORY MUSEUM
DEPARTMENT OF PALEONTOLOGY
LOCALITY CARD

LOCALITY #- 4809

FIELD NUMBER
PJS28Jan02-1

LOCATION

COUNTRY U.S.A.
STATE CA
COUNTY San Diego
CITY Chula Vista

LATITUDE 32°39'29"W VARIANCE
LONGITUDE 116°56'37"W
UTM 11 505287 3613172 VARIANCE

SECT TWNSP DIREC RANGE DIR
25 17 S 1 W

MAP NAME Jamul Mountains, CA
MAP SCALE 1:24000 DATUM NAD1927
MAP SOURCE USGS 1955(1975)

LOCATION IN SECTION SW 1/4, SW 1/4

ELEVATION 698 FT

STRATIGRAPHIC POSITION

GROUP
FORMATION Otay Formation
MEMBER
INFORMAL NAME siltstone-mudstone member

ERA Cenozoic
SYSTEM Paleogene
SER/EPOCH late Oligocene
AGE/STAGE
NALMA late Arikarean
ZONE NAME

LITHOLOGY DEPOSITIONAL ENVIRONMENT
sdst nonmarine
CITATION

FIELD NOTES
P.J.J. Sena
COLLECTOR
P.J.J. Sena 28 Jan 2002
COMPILED BY
P.J.J. Sena 4 Nov 2002

PHOTOS ACCESS NO.

DONATED BY 28 Jan 2002
EastLake Company

ENTERED BY 19 Dec 2002
H.M. Wagner

LOCALITY DESCRIPTION

EastLake Woods is a large land development project on the north side of Otay Lakes Road, bounded on the west by EastLake Business Park, on the east by Upper Otay Reservoir and on the north by East H Street. This locality is located east of Hunte Parkway, just east of the southeastern boundary of the Rolling Hills Ranch project.

The fossils were recovered from a red-gray to orange, medium-grained, massive sandstone with bone.

The fossils were collected from a basal coarse-grained portion of a six foot thick, light brownish-gray, fine-grained, silty sandstone that graded upward into a two foot thick light brown siltstone. Directly below this locality was a twelve foot thick massive, fine-grained, reddish-gray sandstone directly overlying a 12 inch thick pinkish-gray bentonite.

The fossils were collected utilizing hand-quarrying techniques.

The fossils consisted of specimens of *Sespia*, rodents and lizards and this locality was probably at the same stratigraphic horizon and locality 4808.

The locality has been graded away.

LOCALITY: 4809

Records Search Results: SDSNH loc. 4809

No fossil data have yet been recorded for this locality as of February 3, 2015; however, the locality description lists *Sesipia* sp., rodents, and lizards.

DATE 08/27/14
TIME 14:00:16

SAN DIEGO NATURAL HISTORY MUSEUM
DEPARTMENT OF PALEONTOLOGY
LOCALITY CARD

LOCALITY #- 4810

LOCALITY # LOCALITY NAME
4810 EastLake Woods site 3

FIELD NUMBER
PJS6MAR02-1

LOCATION

COUNTRY USA
STATE CA
COUNTY San Diego
CITY Chula Vista

LATITUDE 32°39'30"W VARIANCE
LONGITUDE 116°56'38"W
UTM 11 505253 3613231 VARIANCE

SECT TNSP DIREC RANGE DIR
17 S 1 W

MAP NAME Jamul Mountains, CA
MAP SCALE 1:24000 DATUM NAD1927
MAP SOURCE USGS 1955(1975)

LOCATION IN SECTION

ELEVATION 679 FT

STRATIGRAPHIC POSITION

GROUP
FORMATION Otay Formation
MEMBER
INFORMAL NAME sandstone-mudstone member

ERA Cenozoic
SYSTEM Paleogene
SER/EPOCH late Oligocene
AGE/STAGE
NALMA early Arikareean
ZONE NAME

LITHOLOGY DEPOSITIONAL ENVIRONMENT

sdst nonmarine

FIELD NOTES

P.J.J. Sena
COLLECTOR
P.J.J. Sena, S.L. Walsh 6 Mar 2002
COMPILED BY
P.J.J. Sena 4 Nov 2002

PHOTOS ACCESS NO.

DONATED BY

EastLake Company, Inc. 6 Mar 2002

ENTERED BY

H.M. Wagner 13 Jan 2003

LOCALITY DESCRIPTION

EastLake Woods is a large land development project located north of Otay Lakes Road, east of EastLake Business Park, west of Hunte Parkway, and bounded on the north by east H Street. This locality is located just west of upper Otay Lakes Reservoir.

Fossils were recovered from a red, medium-grained sandstone interbedded in tan sandstones. Bone was spotty, but occurred in a finite layer within the red sandstones. The red sandstone was less than a foot thick.

This locality was high on a hill in a cut in tan siltstones and sandstones. The red, bone-producing sandstone was in the upper portion of the cut with no distinctive lithologies, other than tan siltstones and sandstones above and below it.

Fossils were collected utilizing a pluck and run technique with a quantity, consisting of blocks with the bone-bearing layer in it, being loaded into the back of a pick-up and stock-piled off-site. A bulk sample of 250 pounds was removed and processed utilizing screen-washing techniques.

The locality yielded primarily small mammals. One block had a nice rodent mandible visible in the red sandstone.

The locality has been graded away.

Field Numbers: PJS6MAR02-1, PJS/BOR6MAR02-1

LOCALITY: 4810

Records Search Results: SDSNH loc. 4810

Specimen #	Genus/Species	Family or Higher Taxon	Rock Unit
87144		Sciuridae	Otay Formation, sandstone-mudstone member
87145		Sciuridae	Otay Formation, sandstone-mudstone member
87146	Pleurolicus sp.	Geomyidae	Otay Formation, sandstone-mudstone member
87147	Pleurolicus sp.	Geomyidae	Otay Formation, sandstone-mudstone member
87148	Pleurolicus sp.	Geomyidae	Otay Formation, sandstone-mudstone member
87149	Pleurolicus sp.	Geomyidae	Otay Formation, sandstone-mudstone member
87150	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87151	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87152	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87153	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87154	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87155	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87156	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87157	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87158	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87159	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87160	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87161	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87162	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87163	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87164	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87165	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87166	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87167	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87168	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87169	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone member
87170		Heliscomyidae	Otay Formation, sandstone-mudstone member
87171		Heliscomyidae	Otay Formation, sandstone-mudstone member
87172		Heliscomyidae	Otay Formation, sandstone-mudstone member
87173		Heliscomyidae	Otay Formation, sandstone-mudstone member
87174		Heliscomyidae	Otay Formation, sandstone-mudstone member
87175		Heliscomyidae	Otay Formation, sandstone-mudstone member
87176		Heliscomyidae	Otay Formation, sandstone-mudstone member
87177		Heliscomyidae	Otay Formation, sandstone-mudstone member

[illegible]

Leidymys sp.
Heliscomys sp.
Sespia californica
Sespia californica

DATE 08/27/14
TIME 14:00:17

SAN DIEGO NATURAL HISTORY MUSEUM
DEPARTMENT OF PALEONTOLOGY
LOCALITY CARD

LOCALITY #- 4811

LOCALITY # LOCALITY NAME
4811 EastLake Woods site 4

FIELD NUMBER
BOR/PJS8MAR02-1

LOCATION

COUNTRY USA
STATE CA
COUNTY San Diego
CITY Chula Vista

LATITUDE 32°39' 6"N VARIANCE
LONGITUDE 116°56'44"W

UTM 11 505102 3612496 VARIANCE

SECT TNSP DIREC RANGE DIR
17 S 1 W

MAP NAME Jamul Mountains, CA
MAP SCALE 1:24000 DATUM NAD1927
MAP SOURCE USGS 1955(1975)

LOCATION IN SECTION

ELEVATION 615 FT

STRATIGRAPHIC POSITION

GROUP
FORMATION Otay Formation
MEMBER
INFORMAL NAME gritstone member

ERA Cenozoic
SYSTEM Paleogene
SER/EPOCH late Oligocene
AGE/STAGE
NALMA early Arikareean
ZONE NAME

LITHOLOGY DEPOSITIONAL ENVIRONMENT

sdst nonmarine

CITATION

DONATED BY

EastLake Company 1 Mar 2002

FIELD NOTES

P.J. Sena, B. O. Riney

COLLECTOR

P.J. Sena, B.O. Riney 1 Mar 2002

COMPILED BY

P.J. Sena 12 Nov 2002

PHOTOS ACCESS NO.

ENTERED BY

H.M. Wagner 13 Jan 2003

LOCALITY DESCRIPTION

EastLake Woods is a large land development project located north of north Otay Lakes Road, east of Eastlake Business Park, west of Hunte Parkway and bounded on the north by east H Street.

The fossils were discovered in a gray, coarse-grained, well-consolidated, pebbly gravels of the gritstone member. There was no apparent bedding.

This locality was in the gritstone member of the Otay Formation 36 feet below the contact with the overlying siltstone-mudstone member.

The specimen was hand quarried.

The fossil consisted of a skull fragment of *Sespia*.

The locality has been graded away.

Field Numbers: BOR/PJS8MAR02-1

LOCALITY: 4812

Records Search Results: SDSNH loc. 4811

Specimen #	Genus/Species	Family or Higher Taxon	Rock Unit	NALM Age
91306	Sespia californica	Merycoidodontidae	Otay Formation, gritstone member	early Arikareean
91307	Sespia californica	Merycoidodontidae	Otay Formation, gritstone member	early Arikareean
91308	Sespia californica	Merycoidodontidae	Otay Formation, gritstone member	early Arikareean

DATE 08/27/14
TIME 14:00:18

SAN DIEGO NATURAL HISTORY MUSEUM
DEPARTMENT OF PALEONTOLOGY
LOCALITY CARD

LOCALITY #- 4812

LOCALITY # LOCALITY NAME
4812 EastLake Woods site 5

FIELD NUMBER
BOR25Apr02-1

LOCATION
COUNTRY USA
STATE CA
COUNTY San Diego
CITY Chula Vista

LATITUDE 32°39' 8"W VARIANCE
LONGITUDE 116°56' 41"W
UTM 11 505180 3612539 VARIANCE

MAP NAME Jamul Mountains, CA
MAP SCALE 1:24000 DATUM NAD1927
MAP SOURCE USGS 1955(1975)

SECT TNSP DIREC RANGE DIR
17 S 1 W

LOCATION IN SECTION
ELEVATION 653 FT

STRATIGRAPHIC POSITION
GROUP
FORMATION Otay Formation
MEMBER
INFORMAL NAME gritstone member

ERA Cenozoic
SYSTEM Paleogene
SER/EPOCH late Oligocene
AGE/STAGE
NALMA early Arikarean
ZONE NAME

LITHOLOGY DEPOSITIONAL ENVIRONMENT
sdst nonmarine
CITATION

FIELD NOTES
B.O. Riney, P.J. Sena
COLLECTOR
B.O. Riney, P.J. Sena 25 Apr 2002
COMPILED BY
P.J. Sena 12 Nov 2002

PHOTOS ACCESS NO.

DONATED BY
EastLake Company 25 Apr 2002

ENTERED BY
H.M. Wagner 13 Jan 2003

LOCALITY DESCRIPTION

EastLake Woods is a large land development project located north of Otay Lakes Road, east of Eastlake Business Park, west of Hunte Parkway, and bounded on the north by east H Street.

The fossils were recovered from a gray, well-consolidated, mas sive, coarse-grained, pebbly conglomerate with no evident bedding.

This locality was in the gritstone member of the Otay Formation five feet stratigraphically below the contact between the gritstone and the siltstone-mudstone member of the Otay Formation.

The specimen was hand-quarried.

The fossil consisted of a fragment of the Sespia.

The locality has been graded away.

LOCALITY: 4812

Records Search Results: SDSNH loc. 4812

Specimen #	Genus/Species	Family or Higher Taxon	Rock Unit	NALM Age
91309	Sespia californica	Merycoidodontidae	Otay Formation, gritstone member	early Arikareean

DATE 08/27/14
TIME 14:00:18

LOCALITY # LOCALITY NAME
4813 EastLake Woods site 6

FIELD NUMBER
PJST13June02-1

SAN DIEGO NATURAL HISTORY MUSEUM
DEPARTMENT OF PALEONTOLOGY
LOCALITY CARD

LOCALITY #- 4813

LOCATION

COUNTRY USA
STATE CA
COUNTY San Diego
CITY Chula Vista

LATITUDE 32°39'11"N VARIANCE
LONGITUDE 116°56'36"W

UTM 11 505309 3612636 VARIANCE

SECT TWPSP DIREC RANGE DIR
17 S 1 W

MAP NAME Jamul Mountains, CA
MAP SCALE 1:24000 DATUM NAD1927
MAP SOURCE USGS 1955(1975)

LOCATION IN SECTION

ELEVATION 648 FT

STRATIGRAPHIC POSITION

GROUP
FORMATION Otay Formation
MEMBER
INFORMAL NAME siltstone-mudstone member

ERA Cenozoic
SYSTEM Paleogene
SER/EPOCH late Oligocene
AGE/STAGE
NALMA early Arikareean
ZONE NAME

LITHOLOGY DEPOSITIONAL ENVIRONMENT

sdst nonmarine

CITATION

DONATED BY 13 Jun 2002
EastLake Company

FIELD NOTES

P.J. Sena
COLLECTOR
P.J. Sena 13 Jun 2002
COMPILED BY
P.J. Sena 12 Nov 2002

PHOTOS ACCESS NO.

ENTERED BY
H.M. Wagner 13 Jan 2003

LOCALITY DESCRIPTION

EastLake Woods is a large land development project located north of Otay Lakes Road, east of EastLake Business Park, west of Hunte Parkway, and bounded on the north by east H Street. This locality was collected

Fossils were collected from a red, coarse-grained, cross-bedded, pebbly sandstone.

This layer was overlain by a fining upwards sequence capped by a red, coarse-grained, pebbly sandstone that yielded the fossils. The fossil bed was five feet above the contact between the underlying gritstone member, a gray massive gray gravel deposit.

Fossils were collected utilizing the pluck and run technique.

Fossils consisted of specimens of *Hypertragus*.

The locality has been graded away.

LOCALITY: 4813

Records Search Results: SDSNH loc. 4813

Specimen #	Genus/Species	Family or Higher Taxon	Rock Unit
91310		Rodentia	Otay Formation, siltstone-mudstone member
91311		Artiodactyla	Otay Formation, siltstone-mudstone member

DATE 08/27/14
TIME 14:00:19

SAN DIEGO NATURAL HISTORY MUSEUM
DEPARTMENT OF PALEONTOLOGY
LOCALITY CARD

LOCALITY #- 4814

LOCALITY # LOCALITY NAME
4814 Eastlake Woods site 7

FIELD NUMBER
PJS13Dec02-1

LOCATION

COUNTRY USA
STATE CA
COUNTY San Diego
CITY Chula Vista

LATITUDE 32°38'59"N VARIANCE
LONGITUDE 116°57' 3"W
UTM 11 504611 3612255 VARIANCE

SECT TNSP DIREC RANGE DIR
17 S 1 W

MAP NAME Jamul Mountains, CA
MAP SCALE 1:24000 DATUM NAD1927
MAP SOURCE USGS 1955(1975)

LOCATION IN SECTION

ELEVATION 630 FT

STRATIGRAPHIC POSITION

GROUP
FORMATION Otay Formation
MEMBER
INFORMAL NAME gritstone member

ERA Cenozoic
SYSTEM Paleogene
SER/EPOCH late Oligocene
AGE/STAGE
NALMA early Arikareean
ZONE NAME

LITHOLOGY DEPOSITIONAL ENVIRONMENT

sdst nonmarine

FIELD NOTES

P.J.J. Sena
COLLECTOR
P.J.J. Sena 13 Dec 2002
COMPILED BY
P.J.J. Sena 12 Nov 2002

PHOTOS ACCESS NO.

DONATED BY
Eastlake Communities 13 Dec 2002

ENTERED BY
H.M. Wagner 13 Jan 2003

LOCALITY DESCRIPTION

Eastlake Woods is a large land development project located north of Otay Lakes Road, east of Eastlake Business Park, west of Hunte Parkway, and bounded on the north by east H Street.

Fossils were collected from a tan fine-grained, micaceous, massive sandstone.

The fossil bearing layer was overlain by a one foot thick gray bentonite. The fossil bed was overlying a red-gray, medium to coarse-grained, massive sandstone 10 feet thick.

This locality was collected utilizing the pluck and run technique.

The fossils consisted of an associated skeleton of a rodent.

The locality has been graded away.

Field Numbers: PJS13DEC02-1, PJS12FEB02-1

Elevation Range: 630-631

LOCALITY: 4814

Records Search Results: SDSNH loc. 4814

Specimen #	Genus/Species	Family or Higher Taxon	Rock Unit	NALM Age
91316	Ocajila sp.	Erinaceidae	Otay Formation, gritstone member	early Arikareean
91317		Heliscomyidae	Otay Formation, gritstone member	early Arikareean

DATE 08/27/14
TIME 14:00:20

SAN DIEGO NATURAL HISTORY MUSEUM
DEPARTMENT OF PALEONTOLOGY
LOCALITY CARD

LOCALITY #- 4815

LOCALITY # LOCALITY NAME
4815 EastLake Vistas

FIELD NUMBER
BOR11Mar02-1

LOCATION
COUNTRY USA
STATE CA
COUNTY San Diego
CITY Chula Vista

LATITUDE 32°38'33"N VARIANCE
LONGITUDE 116°56'16"W
UTM 11 505849 3611449 VARIANCE

SECT TNSP DIREC RANGE DIR
18 S 1 W

MAP NAME Jamul Mountains, CA
MAP SCALE 1:24000 DATUM NAD1927
MAP SOURCE USGS 1955(1975)

LOCATION IN SECTION
ELEVATION 604 FT

STRATIGRAPHIC POSITION
GROUP Otay Formation
FORMATION Otay Formation
MEMBER
INFORMAL NAME gritstone member

ERA Cenozoic
SYSTEM Paleogene
SER/EPOCH late Oligocene
AGE/STAGE
NALMA early Arikareean
ZONE NAME

LITHOLOGY DEPOSITIONAL ENVIRONMENT
sdst nonmarine
CITATION

FIELD NOTES
B.O. Riney
COLLECTOR
B.O. Riney 11 Mar 2002

DONATED BY
EastLake Company 11 Mar 2002

COMPILED BY
B.O. Riney 12 Nov 2002

ENTERED BY
H.M. Wagner 14 Jan 2003

PHOTOS ACCESS NO.

LOCALITY DESCRIPTION

EastLake Vistas is a large land development project due west of Lower Otay Lake. The project is bounded on the north by Otay Lakes Road, on the east by Wueste Road, and on the south by Olympic Parkway. Salt Creek forms the western boundary of this project. This locality was located in a street cut 100 yards south of Otay Lakes Road, 300 yards west of Wueste Road, and approximately 500 yards east of Salt Creek.

The fossil recovered from this locality was preserved in a light brown to tan, silty, very coarse-grained, poorly sorted gravelly sand that belong to the gritstone member of the Otay Formation. Above this locality was a series of poorly sorted, silty, very coarse-grained sandstones and gravel beds. Below this locality was essentially the same facies.

Fossils were collected utilizing the pluck and run technique.

The fossils recovered consisted of a skull and partial articulated lower jaw and some post crania of a single individual of *Sespia*.

The locality is no longer accessible as it has been graded away.

LOCALITY: 4815

Records Search Results: SDSNH loc. 4815

Specimen #	Genus/Species	Family or Higher Taxon	Rock Unit	NALM Age
91318	Sespia californica	Merycoidodontidae	Otay Formation, gritstone member	early Arikareean
91319	Sespia californica	Merycoidodontidae	Otay Formation, gritstone member	early Arikareean

DATE 08/27/14
TIME 14:01:35

SAN DIEGO NATURAL HISTORY MUSEUM
DEPARTMENT OF PALEONTOLOGY
LOCALITY CARD

LOCALITY #- 5606

LOCALITY # LOCALITY NAME FIELD NUMBER
5606 McMillin Rolling Hills Ranch, Neigh. 9-12 PJS6JUN04-1

LOCATION

COUNTRY USA
STATE CA
COUNTY San Diego
CITY Chula Vista

LATITUDE 32°39'49"N VARIANCE
LONGITUDE 116°56'36"W

UTM 11 505309 3613816 VARIANCE

SECT TWPSP DIREC RANGE DIR MAP NAME Jamul Mountains, CA
25 17 S 1 W MAP SCALE 1:24000 DATUM NAD1927
MAP SOURCE USGS 1955(1975)

LOCATION IN SECTION NE1/4, NE1/4, NW1/4, SE1/4

ELEVATION 704 FT

STRATIGRAPHIC POSITION

GROUP Otay Formation
MEMBER
INFORMAL NAME sandstone-mudstone member

ERA Cenozoic
SYSTEM Paleogene
SER/EPOCH late Oligocene
AGE/STAGE
NALMA early Arikareean
ZONE NAME

LITHOLOGY DEPOSITIONAL ENVIRONMENT

sdst
CITATION fluvial

FIELD NOTES

PJS book#3 pg 84, 95
COLLECTOR
P.J. Sena 6 Jun 2004
COMPILED BY
P.J. Sena 28 Apr 2005

PHOTOS ACCESS NO.

DONATED BY

McMillin Land Development 6 Jun 2004

ENTERED BY

K.A. Randall 23 May 2005

LOCALITY DESCRIPTION

This locality was discovered during grading of Neighborhoods 9,10,11, and 12 at the Rolling Hills Ranch housing development project in eastern Chula Vista. This project is on the eastern side of Interstate 805, north of Proctor Valley Road, west of Upper Otay Reservoir, south of the south slope of Mount Miguel and east of Auld Golf Course. Locality 5606 was discovered on lot 152, which is north of Winding Fence Way and 5 lots west of the intersection of Agua Vista Drive and Winding Fence Way.

Specimens were collected from a 4 foot thick, tan-gray, fine-grained waxy massive silty sandstone stratum near the base of the sandstone-mudstone member.

This stratum was cut out along strike by a red, coarse-grained, cross-bedded channel fill sandstone. The gross stratigraphy exposed on the project site included approximately 225 feet of Otay Formation strata resting on metavolcanic rocks of the Santiago Formation and capped locally by Quaternary fanglomerates. The Otay Formation consisted of a lower unit (15 to 40 feet thick) assigned to the gritstone member of the Otay Formation and an upper unit (65 to 150 feet thick) assigned to the sandstone-mudstone member. The thickness ranges for these units is the result of pre- and post-Otay Formation erosional and depositional events (e.g., Quaternary erosion locally removed upper portions of the formation). The gritstone unit included yellowish-brown to light red, normally graded, gravelly channel-fill sandstones with angular metavolcanic clasts. The sandstone-mudstone unit consisted of a basal interbedded sequence of pinkish-gray, thinly bedded coarse-grained sandstones; tan, medium-grained, massive sandstones; red, coarse-grained, cross-bedded channel-fill, gravelly sandstones; tan, massive siltstones and tan to gray, fine- to medium-grained, normally graded sandstones with a distinct gray, waxy bentonite bed at elevation 742 feet. This bentonite was locally cut out along strike by an intraformational erosion surface (disconformity). The upper portion of the sandstone-mudstone unit above the disconformity consisted of interbedded tabular strata of tan, massive siltstones; gray, fine-grained, bentonitic sandstones; tan, fine-grained, massive sandstones; and pink, waxy bentonites.

Fossils were collected by pluck-and-run.

Fossils recovered include an articulated partial skeleton of a small oreodont (*Sespia californica*) and a partial jaw.

The locality has been graded away.

LOCALITY 5606

Records Search Results: SDSNH loc. 5606

Specimen #	Genus/Species	Family or Higher Taxon	Rock Unit
104309	Sespia californica	Merycoidodontidae	Otay Formation, sandstone-mudstone member
104310	Hypertragulus sp.	Hypertragulidae	Otay Formation, sandstone-mudstone member

DATE 08/27/14
TIME 14:01:36

SAN DIEGO NATURAL HISTORY MUSEUM
DEPARTMENT OF PALEONTOLOGY
LOCALITY CARD

LOCALITY #- 5607

LOCALITY # LOCALITY NAME
5607 McMillin Rolling Hills Ranch, Neigh. 9-12

FIELD NUMBER
PJS26MAY04-1

LOCATION

COUNTRY USA
STATE CA
COUNTY San Diego
CITY Chula Vista

LATITUDE 32°39'47"N VARIANCE
LONGITUDE 116°56'27"W

UTM 11 505539 3613744 VARIANCE

SECT TUNSP DIREC RANGE DIR MAP NAME Jamul Mountains, CA
25 17 S 1 W MAP SCALE 1:24000 DATUM NAD1927
MAP SOURCE USGS 1955(1975)

LOCATION IN SECTION NE1/4,NE1/4,NW1/4,SW1/4

ELEVATION 690 FT

STRATIGRAPHIC POSITION

GROUP Otay Formation
FORMATION Otay Formation
MEMBER
INFORMAL NAME gritstone member

ERA Cenozoic
SYSTEM Paleogene
SER/EPOCH late Oligocene
AGE/STAGE
NALMA early Arikareean
ZONE NAME

LITHOLOGY DEPOSITIONAL ENVIRONMENT
cong fluvial
CITATION

FIELD NOTES
PJS book#3 pg 94
COLLECTOR

P.J. Sena 26 May 2004
COMPILED BY
P.J. Sena 28 Apr 2005

DONATED BY
McMillin Land Development 26 May 2004

ENTERED BY
K.A. Randall 23 May 2005

PHOTOS ACCESS NO.

LOCALITY DESCRIPTION

This locality was discovered during grading of Neighborhoods 9,10,11 and 12 at the Rolling Hills Ranch housing development project in eastern Chula Vista. This project is on the eastern side of Interstate 805, north of Proctor Valley Road, west of Upper Otay Reservoir, south of the south slope of Mount Miguel and east of Auld Golf Course. This locality was found on lot 149, which is the 2nd lot west of the intersection of Winding Fence Way and Agua Vista Drive. Lot 149 is on the north side of Winding Fence Way.

This locality was collected from an indurated 4 foot thick, tan coarse-grained sandstone and gravel channel lense at the top of the gritstone member.

The overlying gritstone/sandstone-mudstone contact is a planar scoured erosional surface. The gross stratigraphy exposed on the project site included approximately 225 feet of Otay Formation strata resting on metavolcanic rocks of the Santiago Formation and capped locally by Quaternary fanglomerates.

The Otay Formation consisted of a lower unit (15 to 40 feet thick) assigned to the gritstone member of the Otay Formation and an upper unit (65 to 150 feet thick) assigned to the sandstone-mudstone member. The thickness ranges for these units is the result of pre- and post-Otay Formation erosional and depositional events (e.g., Quaternary erosion locally removed upper portions of the formation). The gritstone unit included yellowish-brown to light red, normally graded, gravelly channel-fill sandstones with angular metavolcanic clasts. The sandstone-mudstone unit consisted of a basal interbedded sequence of pinkish-gray, thinly bedded coarse-grained sandstones; tan, medium-grained, massive sandstones; red, coarse-grained, cross-bedded channel-fill, gravelly sandstones; tan, massive siltstones and tan to gray, fine- to medium-grained, normally graded sandstones with a distinct gray, waxy bentonite bed at elevation 742 feet. This bentonite was locally cut out along strike by an intraformational erosion surface (disconformity). The upper portion of the sandstone-mudstone unit above the disconformity consisted of interbedded tabular strata of tan, massive siltstones; gray, fine-grained, bentonitic sandstones; tan, fine-grained, massive sandstones; and pink, waxy bentonites.

Fossils were collected using pluck-and-run techniques.

Fossils recovered include an isolated partial lower jaw with deciduous teeth of a small oreodont (*Sespia californica*).

The locality has been graded away.

LOCALITY 5607

Records Search Results: SDSNH loc. 5607

Specimen #	Genus/Species	Family or Higher Taxon	Rock Unit	NALM Age
104311	Sespia californica	Merycoidodontidae	Otay Formation, gritstone member	early Arikareean

DATE 08/27/14
TIME 14:01:37

SAN DIEGO NATURAL HISTORY MUSEUM
DEPARTMENT OF PALEONTOLOGY
LOCALITY CARD

LOCALITY #- 5608

LOCALITY # 5608 LOCALITY NAME
McMillin Rolling Hills Ranch, Neigh. 9-12

FIELD NUMBER
PJS23MAY04-1

LOCATION
COUNTRY USA
STATE CA
COUNTY San Diego
CITY Chula Vista

LATITUDE 32°39'47"N VARIANCE
LONGITUDE 116°56'27"W
UTM 11 505536 3613744 VARIANCE

SECT 25 TWP 17S DIR 1 W
MAP NAME Jamul Mountains, CA
MAP SCALE 1:24000 DATUM NAD1927
MAP SOURCE USGS 1955(1975)

LOCATION IN SECTION NE1/4,NE1/4,SW1/4,SW1/4

ELEVATION 686 FT

STRATIGRAPHIC POSITION

GROUP
FORMATION Otay Formation
MEMBER
INFORMAL NAME gritstone member

ERA Cenozoic
SYSTEM Paleogene
SER/EPOCH late Oligocene
AGE/STAGE
NALMA early Arikareean
ZONE NAME

LITHOLOGY DEPOSITIONAL ENVIRONMENT
sdst fluvial
CITATION

FIELD NOTES
PJS book#3 pg 94
COLLECTOR

DONATED BY
McMillin Land Development 23 May 2004
ENTERED BY
K.A. Randall 23 May 2005

PHOTOS ACCESS NO.

LOCALITY DESCRIPTION

This locality was discovered during grading of Neighborhoods 9,10,11, and 12 at the Rolling Hills Ranch housing development project in eastern Chula Vista. This project is on the eastern side of Interstate 805, north of Proctor Valley Road, west of Upper Otay Reservoir, south of the south slope of Mount Miguel and east of Auld Golf Course. This locality was found on lot 149, which is the 2nd lot west of the intersection of winding Fence Way and Agua Vista Drive. Lot 149 is on the north side of Winding Fence Way. This is the same geographic position as locality 5607.

The locality was collected in channel of gray, imbricated gravel grading upwards into with gray, coarse-grained sandstone. The fossiliferous unit is within a series of channel infills that fine upwards and are each cut into by the overlying channel deposit. This locality scoured into an underlying infilled coarse-grained sandstone-gravel channel with an erosional irregular contact. The gross stratigraphy exposed on the project site included approximately 225 feet of Otay Formation strata resting on metavolcanic rocks of the Santiago Formation and capped locally by Quaternary conglomerates. The Otay Formation consisted of a lower unit (15 to 40 feet thick) assigned to the gritstone member of the Otay Formation and an upper unit (65 to 150 feet thick) assigned to the sandstone-mudstone member. The thickness ranges for these units is the result of pre- and post-Otay Formation erosional and depositional events (e.g., Quaternary erosion locally removed upper portions of the formation). The gritstone unit included yellowish-brown to light red, normally graded, gravelly channel-fill sandstones with angular metavolcanic clasts. The sandstone-mudstone unit consisted of a basal interbedded sequence of pinkish-gray, thinly bedded coarse-grained sandstones; tan, medium-grained, normally graded sandstones with a distinct gray, waxy bentonite bed at sandstones; tan, massive siltstones and tan to gray, fine- to medium-grained, normally graded sandstones with a distinct gray, waxy bentonite bed at elevation 742 feet. This bentonite was locally cut out along strike by an intraformational erosion surface (disconformity). The upper portion of the sandstone-mudstone unit above the disconformity consisted of interbedded tabular strata of tan, massive siltstones; gray, fine-grained, bentonitic sandstones; tan, fine-grained, massive sandstones; and pink, waxy bentonites.

This specimen was collected by pluck-and-run.

Fossils recovered include an isolated partial ulna of a small camelid.

The locality has been graded away.

LOCALITY 5608

Records Search Results: SDSNH loc. 5608

Specimen #	Genus/Species	Family or Higher Taxon	Rock Unit	NALM Age
104312		Camelidae	Otay Formation, gritstone member	early Arikareean

DATE 08/27/14
TIME 14:01:38

SAN DIEGO NATURAL HISTORY MUSEUM
DEPARTMENT OF PALEONTOLOGY
LOCALITY CARD

LOCALITY #- 5609

LOCALITY # LOCALITY NAME
5609 McMillin Rolling Hills Ranch, Neigh. 9-12

FIELD NUMBER
PJS1MAR04-1

LOCATION

COUNTRY USA
STATE CA
COUNTY San Diego
CITY Chula Vista

LATITUDE 32°39'46"N VARIANCE
LONGITUDE 116°56'27"W

UTM 11 505536 3613698 VARIANCE

SECT TOWNSHIP DIRECT RANGE DIR
25 17 S 1 W

MAP NAME Jamul Mountains, CA
MAP SCALE 1:24000 DATUM NAD1927
MAP SOURCE USGS 1955(1975)

LOCATION IN SECTION NE1/4,NE1/4,NW1/4,NW1/4

ELEVATION 695 FT

STRATIGRAPHIC POSITION

GROUP
FORMATION Otay Formation
MEMBER
INFORMAL NAME sandstone-mudstone member

ERA Cenozoic
SYSTEM Paleogene
SER/EPOCH Late Oligocene
AGE/STAGE
NALMA early Arikareean
ZONE NAME

LITHOLOGY	DEPOSITIONAL ENVIRONMENT	FIELD NOTES	PHOTOS	ACCESS NO.
sdst	fluvial	PJS book#3 pg 85, 84		
CITATION		COLLECTOR P.J. Sena 1 Mar 2004		
DONATED BY		COMPILED BY P.J. Sena 28 Apr 2005	ENTERED BY K.A. Randall 23 May 2005	
McMillin Land Development	1 Mar 2004			

LOCALITY DESCRIPTION

This locality was discovered during grading of Neighborhoods 9, 10, 11, and 12 at the Rolling Hills Ranch housing development project in eastern Chula Vista. This project is on the eastern side of Interstate 805, north of Proctor Valley Road, west of Upper Otay Reservoir, south of the south slope of Mount Miguel and east of Auld Golf Course. This locality was found on lot 104, which is the north most lot on the east end of Lake Hill Place cul-de-sac.

This locality was discovered near the base of a 4 foot thick broad channel infilling composed of red, coarse-grained, normally graded sandstone. The basal 3-4 inches of the this bed contained imbricated calichified pebbly siltstone rip-up clasts and abraded bone.

The overlying unit is a 5 foot thick gray, massive medium-grained sandstone. The upper contact was erosional and scoured into the fossil bearing channel deposit. The lower contact also erosional, scoured into the upper part of the gritstone member. The gross stratigraphy exposed on the project site included approximately 225 feet of Otay Formation strata resting on metavolcanic rocks of the Santiago Formation and capped locally by Quaternary fanglomerates. The Otay Formation consisted of a lower unit (15 to 40 feet thick) assigned to the gritstone member of the Otay Formation and an upper unit (65 to 150 feet thick) assigned to the sandstone-mudstone member. The thickness ranges for these units is the result of pre- and post-Otay Formation erosional and depositional events (e.g., Quaternary erosion locally removed upper portions of the formation). The gritstone unit included yellowish-brown to light red, normally graded, gravelly channel-fill sandstones with angular metavolcanic clasts. The sandstone-mudstone unit consisted of a basal interbedded sequence of pinkish-gray, thinly bedded coarse-grained sandstones; tan, medium-grained, massive sandstones; red, coarse-grained, cross-bedded channel-fill, gravelly sandstones; tan, massive siltstones and tan to gray, fine- to medium-grained, normally graded sandstones with a distinct gray, waxy bentonite bed at elevation 742 feet. This bentonite was locally cut out along strike by an intraformational erosion surface (disconformity). The upper portion of the sandstone-mudstone unit above the disconformity consisted of interbedded tabular strata of tan, massive siltstones; gray, fine-grained, bentonitic sandstones; tan, fine-grained, massive sandstones; and pink, waxy bentonites.

This locality was collected by pluck-and-run techniques.

Fossils recovered include an isolated upper molar and a partial lower jaw with deciduous teeth of a small camelid.

The locality has been graded away.

LOCALITY 5609

Records Search Results: SDSNH loc. 5609

Specimen #	Genus/Species	Family or higher Taxon	Rock Unit	NALM Age
104313		Camelidae	Otay Formation, sandstone-mudstone member	early Arikareean
104314		Camelidae?	Otay Formation, sandstone-mudstone member	early Arikareean

DATE 08/27/14
TIME 14:01:38

SAN DIEGO NATURAL HISTORY MUSEUM
DEPARTMENT OF PALEONTOLOGY
LOCALITY CARD

LOCALITY #- 5610

LOCALITY # LOCALITY NAME
5610 McMillin Rolling Hills Ranch, Neigh. 9-12

FIELD NUMBER
PJS15MAR04-1

LOCATION
COUNTRY USA
STATE CA
COUNTY San Diego
CITY Chula Vista
LATITUDE 32°39'44"N VARIANCE
LONGITUDE 116°56'26"W
UTM 11 505580 3613655 VARIANCE

SECT TWNSP DIREC RANGE DIR MAP NAME Jamul Mountains, CA
25 17 S 1 W MAP SCALE 1:24000 DATUM 1927NAD
MAP SOURCE USGS 1955(1975)

LOCATION IN SECTION SE1/4, NE1/4, NW1/4, NW1/4

ELEVATION 685 FT

STRATIGRAPHIC POSITION
GROUP
FORMATION Otay Formation
MEMBER
INFORMAL NAME gritstone member

ERA Cenozoic
SYSTEM Paleogene
SER/EPOCH late Oligocene
AGE/STAGE
NALMA early Arikareean
ZONE NAME

LITHOLOGY DEPOSITIONAL ENVIRONMENT
sdst fluvial
CITATION

FIELD NOTES
PJS book #3 pg 84,85
COLLECTOR
P.-J. Sena 15 Mar 2004
COMPILED BY
P.-J. Sena 28 Apr 2005

DONATED BY
McMillin Land Development 15 Mar 2004

ENTERED BY
K.A. Randall 24 May 2005

PHOTOS ACCESS NO.

LOCALITY DESCRIPTION

This locality was discovered during grading of Neighborhoods 9,10,11, and 12 at the Rolling Hills Ranch housing development project in eastern Chula Vista. This project is on the eastern side of Interstate 805, north of Proctor Valley Road, west of Upper Otay Reservoir, south of the south slope of Mount Miguel and east of Auld Golf Course. This locality was discovered on lot #103, which is the northwest most lot on Lake Hill Place cul-de-sac.

This locality was discovered in a 6 foot thick, red, massive, coarse-grained, gravely sandstone stratum. Fossils were found at the base of the unit.

This locality is in the uppermost part of the gritstone member, 6 feet below the sandstone-mudstone/gritstone member contact. The overlying contact is an irregular contact represented by a sharp increase in grain size. The lower contact an erosional contact scoured into the underlying channel deposit.

The gross stratigraphy exposed on the project site included approximately 225 feet of Otay Formation strata resting on metavolcanic rocks of the Santiago Formation and capped locally by Quaternary fanglomerates. The Otay Formation consisted of a lower unit (15 to 40 feet thick) assigned to the gritstone member of the Otay Formation and an upper unit (65 to 150 feet thick) assigned to the sandstone-mudstone member. The thickness ranges for these units is the result of pre- and post-Otay Formation erosional and depositional events (e.g., Quaternary erosion locally removed upper portions of the formation). The gritstone unit included yellowish-brown to light red, normally graded, gravely channel-fill sandstones with angular metavolcanic clasts. The sandstone-mudstone unit consisted of a basal interbedded sequence of pinkish-gray, thinly bedded coarse-grained sandstones; tan, medium-grained, massive sandstones; red, coarse-grained, cross-bedded channel-fill, gravely sandstones; tan, massive siltstones and tan to gray, fine- to medium-grained, normally graded sandstones with a distinct gray, waxy bentonite bed at elevation 742 feet. This bentonite was locally cut out along strike by an intraformational erosion surface (disconformity). The upper portion of the sandstone-mudstone unit above the disconformity consisted of interbedded tabular strata of tan, massive siltstones; gray, fine-grained, bentonitic sandstones; tan, fine-grained, massive sandstones; and pink, waxy bentonites.

Specimens were collected by pluck-and-run techniques.

Specimens collected include a partial articulated skeleton of *Sespia californica*. This animal was lying prone in coarse-grained sandstone.

The locality has been graded away.

LOCALITY 5610

Records Search Results: SDSNH loc. 5610

Specimen #	Genus/Species	Family or Higher Taxon	Rock Unit	NALM Age
104315	Sespia californica	Merycoidodontidae	Otay Formation, gritstone member	early Arikareean

DATE 08/27/14
TIME 14:01:39

SAN DIEGO NATURAL HISTORY MUSEUM
DEPARTMENT OF PALEONTOLOGY
LOCALITY CARD

LOCALITY #- 5611

LOCALITY # LOCALITY NAME
5611 McMillin Rolling Hills Ranch, Neigh. 9-12

FIELD NUMBER
see below

LOCATION
COUNTRY USA
STATE CA
COUNTY San Diego
CITY Chula Vista

LATITUDE 32°39'50"N VARIANCE
LONGITUDE 116°56'43"W

UTM 11 505136 3613828 VARIANCE

SECT TWPSP DIREC RANGE DIR
26 17 S 1 W

MAP NAME Jamul Mountains, CA
MAP SCALE 1:24000 DATUM 1927NAD
MAP SOURCE USGS 1955(1975)

LOCATION IN SECTION NE1/4, NE1/4, SE1/4, SE1.4

ELEVATION 718 FT

STRATIGRAPHIC POSITION
GROUP
FORMATION Otay Formation
MEMBER
INFORMAL NAME sandstone-mudstone member

ERA Cenozoic
SYSTEM Paleogene
SER/EPOCH late Oligocene
AGE/STAGE
NALMA early Arikareean
ZONE NAME

LITHOLOGY DEPOSITIONAL ENVIRONMENT
sdst fluvial

CITATION

DONATED BY
McMillin Land Development 19 Mar 2004

FIELD NOTES
PJS book #3 pg 84, 85, 93
COLLECTOR
P.J. Sena, H.M. Wagner 19 Mar 2004
COMPILED BY
P.J. Sena 28 Apr 2005

PHOTOS ACCESS NO.

ENTERED BY
K.A. Randall 24 May 2005

LOCALITY DESCRIPTION

This locality was discovered during grading of Neighborhoods 9, 10, 11, and 12 at the Rolling Hills Ranch housing development project in eastern Chula Vista. This project is on the eastern side of Interstate 805, north of Proctor Valley Road, west of Upper Otay Reservoir, south of the south slope of Mount Miguel and east of Auld Golf Course. This locality represents three discrete collecting sites that occur along 400 feet of strike within a common stratigraphic unit. PJS19MAR04 and PJS15MAY04 were discovered in a cut slope between lots 138 and 114 on the south side of Winding Fence Way. HWI 304-3 was found between lots 79 and 80 on the east side of coastal Hills Drive which are the 4th and 5th lots north of the intersection of Coastal Hill Drive and Proctor Valley Road.

This locality was collected in a 2 foot thick, red, thinly-laminated, coarse-grained sandstone with bone and tooth fragments. This consisted of a channel infill incised into a tan fine-grained massive sandstone. The fossil-bearing stratum occurs approximately 25 feet above the base of the sandstone-mudstone member.

This horizon is a lens of coarse sandstone. The lower contact is scoured into the underlying 6 foot thick, massive, fine-grained sandstone with an erosional irregular contact. The overlying contact is sharp and flat, and represents an abrupt change in color and grain size. The overlying bed is a 3 foot tan massive siltstone. This overlying unit is below the Business Center Bentonite at elevation 745 and above the gritstone member contact at elevation 690.

This locality was hand quarried and bulk sampled. Approximately 200 lbs of matrix was collected for screen washing.

Fossils recovered include an isolated lower jaw of a canid (Mesocyon sp.). Screenwashing produced numerous isolated teeth of a small rodent (Heliscomys sp.), miscellaneous postcrania of other small rodents, and a partial lower jaw with teeth of an unidentified lizard.

Field Numbers: PJS19MAR04-1, PJS15MAY04-1, HWI304-3

Collection Dates: 19 Mar 04, 15 May 04, 9 Mar 04

LOCALITY 5611

Records Search Results: SDSNH loc. 5611

Specimen #	Genus/Species	Family or Higher Taxon	Rock Unit	NALM Age
104316	Mesocyon sp.	Squamata	Otay Formation, sandstone-mudstone	early Arikareean
104317	Heliscomys sp.	Canidae	Otay Formation, sandstone-mudstone	early Arikareean
104318	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone	early Arikareean
104319	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone	early Arikareean
104320	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone	early Arikareean
104321	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone	early Arikareean
104322	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone	early Arikareean
104323	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone	early Arikareean
104324	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone	early Arikareean
104325	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone	early Arikareean
104326	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone	early Arikareean
104327	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone	early Arikareean
104328	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone	early Arikareean
104329	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone	early Arikareean
104330	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone	early Arikareean
104331	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone	early Arikareean
104332	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone	early Arikareean
104333	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone	early Arikareean
104334	Heliscomys sp.	Heliscomyidae	Otay Formation, sandstone-mudstone	early Arikareean
104335		Rodentia	Otay Formation, sandstone-mudstone	early Arikareean
104336		Mammalia	Otay Formation, sandstone-mudstone	early Arikareean
104337		Mammalia	Otay Formation, sandstone-mudstone	early Arikareean
104338		Mammalia	Otay Formation, sandstone-mudstone	early Arikareean

DATE 08/27/14
TIME 14:02:07

SAN DIEGO NATURAL HISTORY MUSEUM
DEPARTMENT OF PALEONTOLOGY
LOCALITY CARD

LOCALITY #- 5618

LOCALITY # LOCALITY NAME
5618 McMillin Rolling Hills Ranch, Neigh. 9-12

FIELD NUMBER
PJS5WAY04-1

LOCATION
COUNTRY USA
STATE CA
COUNTY San Diego
CITY Chula Vista

LATITUDE 32°39'58"N
LONGITUDE 116°56'40"W
UTM 11 505220 3614081

STRATIGRAPHIC POSITION
GROUP
FORMATION Otay Formation
MEMBER
INFORMAL NAME sandstone-mudstone member

SECT TWNSP DIREC RANGE DIR
25 17 S 1 W

MAP NAME Jamul Mountains, CA
MAP SCALE 1:24000 DATUM 1927NAD
MAP SOURCE USGS 1955(1975)

LOCATION IN SECTION SW1/4, NW1/4, SW1/4, NW1/4

ELEVATION 742 FT

LITHOLOGY DEPOSITIONAL ENVIRONMENT
sdst fluvial
CITATION

FIELD NOTES
PJS book #3 page 92
COLLECTOR
P.J.J. Sena 5 May 2004
COMPILED BY
K.A. Randall 25 May 2005

PHOTOS ACCESS NO.

DONATED BY
McMillin Land Development 5 May 2004

ENTERED BY
K.A. Randall 25 May 2005

LOCALITY DESCRIPTION

This locality was discovered during grading of Neighborhood 9, 10, 11, and 12 at the Rolling Hills Ranch housing development project in eastern Chula Vista. This project is on the eastern side of Interstate 805, north of Proctor Valley Road, west of Upper Otay Reservoir, south of the south slope of Mount Miguel and east of Auld Golf Course. Locality 5618 was found on lot 59, which is west of Coastal Hills Drive.

Fossils were collected from a 4 inch to 1 1/4 foot thick channel infilling horizon comprised of a red, thinly laminated coarse-grained sandstone with mudstone pebbly ripup clasts and white bone fragments at the base.

The underlying unit is a gray, massive, indurated, medium-grained sandstone. The contact between the fossil horizon and massive gray sandstone is an uneven scour surface. The overlying unit is a massive, fine-grained sandstone which grades downward into the fossil horizon. The overlying contact is gradational. The gross stratigraphy exposed on the project site included approximately 225 feet of Otay Formation strata resting on metavolcanic rocks of the Santiago Formation and capped locally by Quaternary fanglomerates. The Otay Formation consisted of a lower unit (15 to 40 feet thick) assigned to the gritstone member of the Otay Formation and an upper unit (65 to 150 feet thick) assigned to the sandstone-mudstone member. The thickness ranges for these units is the result of pre- and post-Otay Formation erosional and depositional events (e.g., Quaternary erosion locally removed upper portions of the formation). The gritstone unit included yellowish-brown to light red, normally graded, gravely channel-fill sandstones with angular metavolcanic clasts. The sandstone-mudstone unit consisted of a basal interbedded sequence of pinkish-gray, thinly bedded coarse-grained sandstones; tan, medium-grained, massive sandstones; red, coarse-grained, cross-bedded channel-fill, gravely sandstones; tan, massive siltstones and tan to gray, fine- to medium-grained, normally graded sandstones with a distinct gray, waxy bentonite bed at elevation 742 feet. This bentonite was locally cut out along strike by an intraformational erosion surface (disconformity). The upper portion of the sandstone-mudstone unit above the disconformity consisted of interbedded tabular strata of tan, massive siltstones; gray, fine-grained, bentonitic sandstones; tan, fine-grained, massive sandstones; and pink, waxy bentonites. Fossils were collected by hand quarrying and bulk sampling. Approximately 50 lbs of matrix was collected for screenwashing.

Fossils recovered include a partial lower jaw with teeth of an unidentified lizard, numerous isolated limb bones of small mammals, and partial upper and lower jaws with teeth of a small oreodont (*Sespia Californica*).

The locality has been graded away.

LOCALITY 5618

Records Search Results: SDSNH loc. 5618

Specimen #	Genus/Species	Family or Higher Taxon	Rock Unit
104339		Squamata	Otay Formation, sandstone-mudstone member
104340		Rodentia	Otay Formation, sandstone-mudstone member
104341		Rodentia?	Otay Formation, sandstone-mudstone member
104342	Sespia californica	Merycoidodontidae	Otay Formation, sandstone-mudstone member
104343	Sespia californica	Merycoidodontidae	Otay Formation, sandstone-mudstone member
104344	Sespia californica	Merycoidodontidae	Otay Formation, sandstone-mudstone member
104345	Sespia californica	Merycoidodontidae	Otay Formation, sandstone-mudstone member
104346		Mammalia	Otay Formation, sandstone-mudstone member
104347		Mammalia	Otay Formation, sandstone-mudstone member
104348		Mammalia	Otay Formation, sandstone-mudstone member
104349		Mammalia	Otay Formation, sandstone-mudstone member
104350		Mammalia	Otay Formation, sandstone-mudstone member
104351		Chordata	Otay Formation, sandstone-mudstone member